

1 ENERGY AND ENVIRONMENT CABINET

2 Department for Environmental Protection

3 Division of Water

4 (Amendment)

5 401 KAR 10:001. Definitions for 401 KAR Chapter 10.

6 RELATES TO: KRS 146.200-146.360, 146.410-146.535, 146.550-146.570, 146.600-
7 146.619, 146.990, 224.01-010, 224.01-400, 224.16-050, 224.16-070, 224.70-100 - 224.70-140,
8 224.71-100 - 224.71-145, 224.73-100 - 224.73-120, 40 C.F.R. 136[, ~~EO 2008-507, 2008-531~~]

9 STATUTORY AUTHORITY: KRS 224.10-100, 224.70-100, 224.70-110

10 NECESSITY, FUNCTION, AND CONFORMITY: KRS 224.10-100 authorizes the cabinet
11 to promulgate administrative regulations for the prevention, abatement, and control of all water
12 pollution.~~[EO 2008-507 and 2008-531, abolish the Environmental and Public Protection Cabinet~~
13 ~~and establish the new Energy and Environment Cabinet.]~~ This administrative regulation
14 establishes definitions for terms used in 401 KAR Chapter 10.

15 Section 1. Definitions.

16 (1) "Acute-chronic ratio" means the ratio of the acute toxicity, expressed as an LC₅₀, of an
17 effluent or a toxic substance, to its chronic toxicity. It is used as a factor to estimate chronic
18 toxicity from acute toxicity data.

19 (2) "Acute criteria" means the highest instream concentration of a toxic substance or an
20 effluent to which an organism can be exposed for one (1) hour without causing an unacceptable
21 harmful effect.

(3) "Acute toxicity" means lethality or other harmful effect sustained by either an indigenous aquatic organism or a representative indicator organism used in a toxicity test, due to a short-term exposure, of ninety-six (96) hours or less, to a specific toxic substance or mixture of toxic substances.

(4) "Acute toxicity unit" means the reciprocal of the effluent dilution that causes the acute effect, or LC_{50} , by the end of the acute exposure period.

(5) "Adversely affect" or "adversely change" means to alter or change the community structure or function, to reduce the number or proportion of sensitive species, or to increase the number or proportion of pollution tolerant aquatic species so that aquatic life use support or aquatic habitat is impaired.

(6) "Balanced indigenous community" means a biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species, and a lack of domination by pollution tolerant species. The community may include historically nonnative species introduced in connection with a program of wildlife management and species whose presence or abundance results from substantial, irreversible environmental modification. Normally, such a community does not include species whose presence or abundance is attributable to the introduction of pollutants that will be eliminated by compliance of all sources with 401 KAR 5:065, and may not include species whose presence or abundance is attributable to alternative effluent limitations imposed pursuant to 401 KAR 5:055.

(7) "Best management practices" or "BMPs" means:

(a) For agriculture operations, as defined by KRS 224.71-100(3); or

(b) For all other purposes:

1. Schedules of activities, prohibitions of practices, maintenance procedures, and other

management practices to prevent or reduce the pollution of waters of the commonwealth; and

2. ~~[Include]~~ Treatment requirements; ~~;~~ operating procedures; and ~~;~~ practices to control site run-off, pollution of surface water and groundwater from nonpoint sources, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

(8) "Biochemical oxygen demand", "BOD", or "BOD₅" means the amount of oxygen required to stabilize biodegradable organic matter under aerobic conditions within a five (5) day period. Other time periods may be measured, and if so, are indicated where the term is used.

(9) "Carbonaceous biochemical oxygen demand" or "CBOD" means BOD, not including the nitrogenous oxygen demand of the wastewater.

(10) "Chronic criteria" means the highest instream concentration of a toxic substance or an effluent to which organisms are able to be exposed for ninety-six (96) hours without causing an unacceptable harmful effect.

(11) "Chronic toxicity" means lethality, reduced growth or reproduction, or other harmful effect sustained by either indigenous aquatic organisms or representative indicator organisms used in toxicity tests due to long-term exposures, relative to the life span of the organisms or a significant portion of their life span, to toxic substances or mixtures of toxic substances.

(12) "Chronic toxicity unit" means the reciprocal of the effluent dilution that causes twenty-five (25) percent inhibition of growth or reproduction to the test organisms by the end of the chronic exposure period.

(13) "Clean Water Act" or "CWA" means the Clean Water Act as subsequently amended, 33 U.S.C. Section 1251 through 1387, otherwise known as the Federal Water Pollution Control Act.

(14) "Coal remining operation" means:

(a) A surface coal mining operation, which begins after July 11, 1990, at a site on which a

1 coal mining operation was conducted before August 3, 1977; and

2 (b) A surface coal mining operation existing on July 11, 1990, which receives a permit
3 revision from the Department for Surface Mining Reclamation and Enforcement (DSMRE) in
4 accordance with 405 KAR 8:010, Section 20, for a site on which a coal mining operation was
5 conducted before August 3, 1977.

6 (15) "Cold water aquatic habitat" or "CAH" means surface waters and associated substrate
7 that are able to support indigenous aquatic life or self-sustaining or reproducing trout populations
8 on a year-round basis.

9 (16) "Concentrated animal feeding operation" means one (1) of the following:

10 (a) "Large concentrated animal feeding operation" as defined in subsection (45) of this
11 section;

12 (b) "Medium concentrated animal feeding operation" as defined in subsection (50) of this
13 section; or

14 (c) "Small concentrated animal feeding operation" as defined in subsection (76) of this
15 section.

16 (17) "Conventional domestic water supply treatment" means or includes coagulation,
17 sedimentation, filtration, and disinfection.

18 (18) "Conventional pollutant" means biochemical oxygen demand (BOD), chemical oxygen
19 demand (COD), total organic carbon (TOC), total suspended solids (TSS), ammonia (as N),
20 bromide, chlorine (total residual), color, fecal coliform, fluoride, nitrate, kjeldahl nitrogen, oil
21 and grease, and phosphorus.

22 (19) "Criteria" means specific concentrations or ranges of values, or narrative statements of
23 water constituents that represent a quality of water expected to result in an aquatic ecosystem

protective of designated uses of surface waters. Criteria are derived to protect legitimate uses such as aquatic life, domestic water supply, and recreation and to protect human health.

(20) "Day" means a twenty-four (24) hour period.

(21) "Discharge" or "discharge of a pollutant" means the addition of a pollutant or combination of pollutants to waters of the commonwealth from a point source.

(22) "Division" means the Kentucky Division of Water, within the Department for Environmental Protection, Energy and Environment Cabinet.

(23) "Domestic" means relating to household wastes or other similar wastes. It is used to distinguish municipal, household, or commercial water or wastewater services from industrial water or wastewater services.

(24) "Domestic sewage" means sewage devoid of industrial or other wastes and that is typical of waste received from residential facilities. It may include wastes from commercial developments, schools, restaurants, and other similar developments.

(25) "Domestic water supply" or "DWS" means surface waters that with conventional domestic water supply treatment are suitable for human consumption through a public water system as defined in 401 KAR 8:010, culinary purposes, or for use in a food or beverage processing industry; and meet state and federal regulations promulgated pursuant to~~under~~ the Safe Drinking Water Act, as amended, 42 U.S.C. 300f - 300j-26.

(26) "Effluent limitations" is defined by~~at~~ KRS 224.01-010(12).

(27) "Environmental Protection Agency" or "EPA" means the United States Environmental Protection Agency.

(28) "Epilimnion" means the thermally homogeneous water layer overlying the metalimnion of a thermally stratified lake or reservoir.

(29) "E. coli" or "Escherichia coli" means an aerobic and facultative anaerobic gram negative, nonspore forming, rod shaped bacterium that can grow at forty-four and five tenths (44.5) degrees Celsius, that is ortho-nitrophenyl-B-D-galactopyranoside (ONPG) positive, and Methylumbelliferyl glucuronide (MUG) positive. It is a member of the indigenous fecal flora of warm-blooded animals.

(30) "Eutrophication" means the enrichment of a surface water with nutrients nitrogen and phosphorus resulting in adverse effects on water chemistry and the indigenous aquatic community. Resulting adverse effects on water chemistry manifest by daily dissolved oxygen supersaturation followed by low dissolved oxygen concentrations and diurnal increase in pH. Resulting adverse effects on the indigenous aquatic community include:

(a) Nuisance algae blooms;

(b) Proliferation of nuisance aquatic plants;

(c) Displacement of diverse fish or macroinvertebrate community by species tolerant of nutrient-enriched environments; or

(d) Fish kills brought on by severe, sudden episodes of plant nutrient enrichment.~~[by the discharge or addition of a nutrient.]~~

(31) "Exceptional water" means a surface water categorized as exceptional by the cabinet pursuant to 401 KAR 10:030.

(32) "Existing use" means a legitimate use being attained in or on a surface water of the commonwealth on or after November 28, 1975, irrespective of its use designation.

(33) "Expanded discharge" means an increase in pollutant loading of twenty (20) percent or greater.

(34) "°F" means degrees Fahrenheit.

(35) "General permit" means a KPDES permit authorizing a category of discharges pursuant to~~under~~ KRS Chapter 224 within a geographical area, issued pursuant to~~under~~ 401 KAR 5:055.

(36) "Harmonic mean flow" means the reciprocal of the mean of the reciprocal daily flow values.

(37) "High quality water" means a surface water categorized as high quality by the cabinet pursuant to 401 KAR 10:030.

(38) "Impact" means a change in the chemical, physical, or biological quality or condition of a surface water.

(39) "Impairment" means a detrimental impact to a surface water that prevents attainment of a designated use.

(40) "Indigenous aquatic community" means naturally occurring aquatic organisms including bacteria, fungi, algae, aquatic insects, other aquatic invertebrates, reptiles, amphibians, and fishes. Under some natural conditions one (1) or more of the above groups may be absent from a surface water.

(41) "Inhibition concentration of twenty-five (25) percent" or "IC₂₅" means the concentration that is determined by a linear interpolation method for estimating the concentration at which a twenty-five (25) percent reduction is shown in reproduction or growth in test organisms, and which statistically approximates the concentration at which an unacceptable chronic effect is not observed.

(42) "Intermittent water" means a stream that flows only at certain times of the year.

(43) "Kentucky Pollutant Discharge Elimination System" or "KPDES" means the Kentucky program for issuing, modifying, revoking and reissuing, revoking, monitoring, and enforcing

permits to discharge, and imposing and enforcing pretreatment requirements.

(44) "KPDES permit" means a Kentucky Pollutant Discharge Elimination System permit issued to a facility, including a POTW, or activity pursuant to KRS Chapter 224 for the purpose of operating the facility or activity.

(45) "Large concentrated animal feeding operation" is defined by 40 C.F.R. 122.23(b)(4), effective July 1, 2007.

(46) "LC₁" means that concentration of a toxic substance or mixture of toxic substances that is lethal, or immobilizing if appropriate, to one (1) percent of the organisms tested in a toxicity test during a specified exposure period.

(47) "LC₅₀" means that concentration of a toxic substance or mixture of toxic substances that is lethal, or immobilizing if appropriate, to fifty (50) percent of the species tested in a toxicity test during a specified exposure period.

(48) "Maintain" means to preserve or keep in present condition by not allowing an adverse permanent or long-term change to water quality or to a population of an aquatic organism or its habitat.

(49) "Measurement" means the ability of the analytical method or protocol to quantify as well as identify the presence of the substance in question.

(50) "Medium concentrated animal feeding operation" is defined by 40 C.F.R. 122.23(b)(6), effective July 1, 2007.

(51) "µg/L" means micrograms per liter, same as ppb, assuming unit density.

(52) "mgd" or "MGD" means million gallons per day.

(53) "Milligrams per liter" or "mg/L" means the milligrams of substance per liter of solution, and is equivalent to parts per million in water, assuming unit density.

(54) "Mixing zone" means a domain of a water body contiguous to a treated or untreated wastewater discharge with quality characteristics different from those of the receiving water. The discharge is in transit and progressively diluted from the source to the receiving system. The mixing zone is the domain where wastewater and receiving water mix.

(55) "Natural temperature" means the temperature that would exist in waters of the commonwealth without the change of enthalpy of artificial origin, as contrasted with that caused by climatic change or naturally occurring variable temperature associated with riparian vegetation and seasonal changes.

(56) "Natural water quality" means those naturally occurring physical, chemical, and biological properties of waters.

(57) "Net discharge" means the amount of substance released to a surface water by excluding the influent value from the effluent value if both the intake and discharge are from and to the same or similar body of water.

(58) "Nonconventional pollutant" means a pollutant not considered to be a conventional pollutant, including priority pollutants identified in 401 KAR 5:060.

(59) "Nonpoint" means a~~any~~ source of pollutants not defined by a point source.

(60) "Other wastes" means sawdust, bark or other wood debris, garbage, refuse, ashes, offal, tar, oil, chemicals, acid drainage, wastes from agricultural enterprises, and other foreign substances not included within the definitions of industrial wastes and sewage that may cause or contribute to the pollution of waters of the Commonwealth.

(61) "Outstanding national resource water" means a surface water categorized by the cabinet as an outstanding national resource water pursuant to 401 KAR 10:030.

(62) "Outstanding state resource water" means a surface water designated by the cabinet as

an outstanding state resource water pursuant to 401 KAR 10:031.

(63) "pCi/l" means picocuries per liter.

(64) "PCR" means primary contact recreation.

(65) "Point source" is defined by 33 U.S.C. 1362(14). The term does not include agricultural storm water run-off or return flows from irrigated agriculture.

(66) "POTW" means publicly-owned treatment works as defined ~~by~~ⁱⁿ KRS 224.01-010.

(67) "Primary contact recreation water" means those waters suitable for full body contact recreation during the recreation season of May 1 through October 31.

(68) "Productive aquatic community" means an assemblage of indigenous aquatic life capable of reproduction and growth.

(69) "Propagation" means the continuance of a species by successful spawning, hatching, and development or natural generation in the natural environment, as opposed to the maintenance of the species by artificial culture and stocking.

(70) "Regional facility plan" means a type of water quality management plan addressing point sources of pollution for the purpose of areawide waste treatment management planning prepared by the designated regional planning agency pursuant to Section 201, 205, and 208 of the Clean Water Act, 33 U.S.C. 1251-1387, to control point sources of pollution within a planning area.

(71) "Remined area" means only that area of a coal remining operation on which a coal mining operation was conducted before August 3, 1977.

(72) "Representative indicator organism" means an aquatic organism designated for use in toxicity testing because of its relative sensitivity to toxicants and its widespread distribution in the aquatic environment.

(73) "SCR" means secondary contact recreation.

(74) "Secondary contact recreation waters" means those waters suitable for partial body contact recreation, with minimal threat to public health due to water quality.

(75) "Seven-Q-ten" or " $7Q_{10}$ " means that minimum average flow ~~that~~^[which] occurs for seven (7) consecutive days with a recurrence interval of ten (10) years.

(76) "Small concentrated animal feeding operation" is defined by 40 C.F.R. 122.23(b)(9), effective July 1, 2007.

(77) "Source" means a building, structure, facility, or installation from which there is or may be a discharge of pollutants.

(78) "Standard" means a water quality standard.

(79) "Stormwater" means stormwater run-off, snow melt run-off, and surface run-off and drainage.

(80) "Surface waters" means those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Lagoons used for waste treatment and effluent ditches that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered to be surface waters of the commonwealth.

(81) "Total dissolved solids" or "TDS" means the total dissolved solids (filterable residue) as determined by use of the method specified in 40 C.F.R. Part 136.

(82) "Total suspended solids" or "TSS" means the total suspended solids (nonfilterable residue) as determined by use of the method specified in 40 C.F.R. Part 136.

(83) "Toxic substance" means a substance that is bioaccumulative, synergistic, antagonistic,

1 teratogenic, mutagenic, or carcinogenic and causes death, disease, a behavioral abnormality, a
2 physiological malfunction, or a physical deformity in an organism or its offspring or interferes
3 with normal propagation.

4 (84) "U.S. EPA" means the United States Environmental Protection Agency.

5 (85) "Warm water aquatic habitat" or "WAH" means a surface water and associated substrate
6 capable of supporting indigenous warm water aquatic life.

7 (86) "Wetlands" means land that has a predominance of hydric soils and that is inundated or
8 saturated by surface or groundwater at a frequency and duration sufficient to support, and that
9 under normal circumstances does support, a prevalence of hydrophytic vegetation typically
10 adapted for life in saturated soil conditions.

11 (87) "Zone of initial dilution" means the limited area permitted by the cabinet surrounding or
12 downstream from a discharge location where rapid, first-stage mixing occurs. The zone of initial
13 dilution is the domain where wastewater and receiving water initially mix.

401 KAR 10:001 “Definitions for 401 KAR Chapter 10.” approved for promulgation:

Date

Leonard K. Peters, Secretary
Energy and Environment Cabinet

PUBLIC HEARING AND PUBLIC COMMENT PERIOD: A public hearing on this administrative regulation shall be held on September 27, 2012 at 5:00 P.M. (Eastern Time) at 300 Fair Oaks Lane, Conference Room 301D, Frankfort, Kentucky.

Individuals interested in being heard at this hearing shall notify this agency in writing by September 17, 2012, five workdays prior to the hearing, of their intent to attend. If no notification of intent to attend the hearing is received by that date, the hearing may be canceled.

This hearing is open to the public. Any person who wishes to be heard will be given an opportunity to comment on the proposed administrative regulation. A transcript of the public hearing will not be made unless a written request for a transcript is made. If you do not wish to be heard at the public hearing, you may submit written comments on the proposed administrative regulation. Written comments shall be accepted until October 1, 2012. Send written notification of intent to be heard at the public hearing or written comments on the proposed administrative regulation to the contact person.

CONTACT PERSON: Peter Goodmann
Division of Water
200 Fair Oaks Lane
Frankfort, KY 40601
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REGULATORY IMPACT ANALYSIS AND TIERING STATEMENT

Administrative Regulation #: 401 KAR 10:001

Contact Person: Sandy Gruzesky, Director

(1) Provide a brief summary of:

- (a) What this administrative regulation does:** This administrative regulation establishes definitions for terms used in 401 KAR Chapter 10.
- (b) The necessity of this administrative regulation:** This administrative regulation defines the terms used in the chapter.
- (c) How this administrative regulation conforms to the content of the authorizing statutes:** KRS 224.10-100, 224.70-100, and 224.70-110 authorize the cabinet to establish administrative regulations to protect water quality.
- (d) How this administrative regulation currently assists or will assist in the effective administration of the statutes:** This administrative regulation will provide definitions for terms used throughout the chapter so that the other regulations in the chapter may be properly interpreted and enforced.

(2) If this is an amendment to an existing administrative regulation, provide a brief summary of:

- (a) How the amendment will change this existing administrative regulation:** The amendment strikes the citation to an outdated Executive Order and clarifies the definition of “eutrophication.” Other minor amendments are proposed to comply with regulation drafting requirements.
- (b) The necessity of the amendment to this administrative regulation:** The amendment was necessary to clarify the meaning “eutrophication.” Other minor amendments are proposed to comply with regulation drafting requirements.
- (c) How the amendment conforms to the content of the authorizing statutes:** KRS 224.10-100, 224.70-100, and 224.70-110 authorize the cabinet to establish administrative regulations to protect water quality. This amendment will add in the understanding of the water quality standards regulations contained in 401 KAR Chapter 10. Other minor amendments are proposed to comply with regulation drafting requirements.
- (d) How the amendment will assist in the effective administration of the statutes:** The amendment was necessary to clarify the meanings of terms used throughout the chapter.

(3) List the type and number of individuals, businesses, organizations, or state and local governments affected by this administrative regulation: All individuals, businesses, organizations, and governments that use the Commonwealth’s surface waters for residential, commercial, industrial, or recreational purposes could be impacted by this regulation.

(4) Provide an analysis of how the entities identified in question (3) will be impacted by either the implementation of this administrative regulation, if new, or by the change, if it is an amendment, including:

- (a) List the actions that each of the regulated entities identified in question (3) will have to take to comply with this administrative regulation or amendment:** None
- (b) In complying with this administrative regulation or amendment, how much will it cost**

- each of the entities identified in question (3): There will be no cost
- (c) **As a result of compliance, what benefits will accrue to the entities identified in question (3):** Affected entities will understand the terms used throughout 401 KAR Chapter 10.
- (5) **Provide an estimate of how much it will cost the administrative body to implement this administrative regulation:**
- (a) **Initially:** There are no initial costs as a result of amending this administrative regulation.
- (b) **On a continuing basis:** There are no continuing costs as a result of amending this administrative regulation.
- (6) **What is the source of the funding to be used for the implementation and enforcement of this administrative regulation?** Not applicable.
- (7) **Provide an assessment of whether an increase in fees or funding will be necessary to implement this administrative regulation, if new, or by the change if it is an amendment:** No increase in fees or funding will be necessary to implement this administrative regulation.
- (8) **State whether or not this administrative regulation established any fees or directly or indirectly increased any fees:** This administrative regulation does not establish or increase fees.
- (9) **TIERING: Is tiering applied? (Explain why or why not)** Tiering is not applied because definitions do not require tiering.

FISCAL NOTE ON STATE OR LOCAL GOVERNMENT

Regulation #: 401 KAR 10:001

Contact Person: Sandy Gruzesky, Director

- 1. What units, parts or divisions of state or local government (including cities, counties, fire departments, or school districts) will be impacted by this administrative regulation?**
Government entities using these regulations will be able to find definitions for terms used throughout the chapter.
- 2. Identify each state or federal statute or federal regulation that requires or authorizes the action taken by the administrative regulation.** KRS 224.10-100, 224.70-100, and 224.70-110 authorize the cabinet to establish administrative regulations to protect water quality.
- 3. Estimate the effect of this administrative regulation on the expenditures and revenues of a state or local government agency (including cities, counties, fire departments, or school districts) for the first full year the administrative regulation is to be in effect.**
 - (a) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for the first year?** None
 - (b) How much revenue will this administrative regulation generate for the state or local government (including cities, counties, fire departments, or school districts) for subsequent years?** None
 - (c) How much will it cost to administer this program for the first year?** There will be no cost.
 - (d) How much will it cost to administer this program for subsequent years?** There will be no cost.

Note: If specific dollar estimates cannot be determined, provide a brief narrative to explain the fiscal impact of the administrative regulation.

Revenues (+/-):

Expenditures (+/-):

Other Explanation: